UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/688,829	10/17/2003	Hideo Nagai	82478-1400	2380

7590 09/08/2005

Joseph W. Price
SNELL & WILMER L.L.P
Suite 1200
1920 Main Street
Irvine, CA 92614-7230

EXAMINER	
LEE, Y MY QUACH	
ART UNIT	**PAPER NUMBER**
2875	

DATE MAILED: 09/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/688,829	NAGAI ET AL.	
	Examiner	Art Unit	
	Lee Y Quach	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-8 and 10-12* is/are rejected.

7)☒ Claim(s) *5 and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 October 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the feature of "the light emission chip made to abut against the phosphor layer" as claimed in claim 7 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: Page 8, line 21, the term "describes" is improper and should be changed to --describe-- in view of the previous term "FIG. 11A - FIG. 11C". Page 10, line 13, the reference numeral "22a" is incorrect and should be changed to --22b-- in view of drawing figure 2 and line 10 of the same page. Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1 to 4 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang in view of Zou et al.

Huang discloses a substrate (24) that dissipates heat, an insulation film (2) that covers a main surface of the substrate, a metal wiring pattern (22, 23) provided on the insulation film, a light emission chip such as a resonant light emitting diode (30) that is mounted above the insulation film, is connected to the metal wiring pattern and emits light having a peak wavelength in a range of 250 nm to 480 nm inclusive (around 455 nanometers, column 5, line 56), and a light reflective layer (25) provided at any place that has the insulation film thereunder but not light emitting surface of the light emission chip thereunder. However, Huang does not disclose that the reflective layer is made of particles of metal oxide having an average particle diameter of 0.5μm or below and selected from the group consisting of Al_2O_3 and ZnO.

Zou et al. teach that it is known in the lighting art to use a reflective layer made of particles of metal oxide selected from the group of Al_2O_3 and ZnO (aluminum oxide, zinc oxide, column 7, line 41) for optimizing the output radiation and light efficiency. Note that Zou et al. teach that the optimum size of the particle may be predicted from the relation as shown on lines 52 to 57 of column 7, the average particle diameter of 0.5μm or below as claimed would naturally and obviously be included based on the relation as taught.

It would have been obvious to one skilled in the art to make the reflective layer of Huang with the particles of metal oxide selected from the group of Al_2O_3 and ZnO with the size as claimed, as shown by Zou et al., for optimizing the output radiation and light efficiency.

6. Claims 6 to 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang in view of Zou et al., as applied to claim 1 above, and further in view of Robertson et al.

Huang as modified by Zou et al. discloses the invention substantially as claimed including a covering member (26) that covers the light emission chip with the exception of having a phosphor layer that is provided on a main surface of a glass substrate of the

covering member facing the light emission chip and made of a composition that emits white excitation light by being excited by the light emitted from the light emission chip.

Robertson et al. teach a covering member made of a glass substrate (101d-l, column 3, line 8) having a phosphor layer (102, column 3, line 1) provided on a main surface of the glass substrate facing the light emission chip and made of a composition that emits white excitation light (column 1, lines 32 to 36) by being excited by the light emitted from the light emission chip (106a-106m).

It would have been obvious to one skilled in the art to provide the substrate of Huang with the glass substrate having a phosphor layer provided on the main surface thereof, as shown by Robertson et al., for emitting white excitation light by being excited by the light emitted from the light emission chip.

With regards to claim 7, the language "the light emission chip is made to abut against the phosphor layer" is considered to be the way of making the light emission chip to abut against the phosphor layer. Any light emission chip is capable of being made to abut against the phosphor layer or any layer so that the space between the layer and the chip can be reduced to overall provide a compact product. This is deemed to fall within the purview of an ordinary engineering design technique and also is recognized as being within the level of ordinary skill in the art. Further, this method of making the chip to abut against the phosphor layer is not germane to the issue of patentability of the device itself. The patentability of a product does not depend on its method of production but rather the determination of patentability is based on product itself. Therefore, this (i.e. method) limitation has not been given patentable weight.

7. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. in view of Robertson et al. and Zou et al.

Shimizu et al. disclose a substrate (1b), an insulation film (1c, 1e) that covers a main surface of the substrate, a wiring pattern (1a) provided on the insulation film, an array of light emission chips such as resonant light emitting diodes (2) that are mounted above the insulation film, is connected to the wiring pattern to emit light having a wavelength and a light reflective layer (3) above the insulation film and surrounding the light emitting surfaces of the light emission chips, and a phosphor layer (paragraph 0244,

lines 16 to 20) operatively positioned relative to the light emission chips and response to the wavelength range to emit a white light. However, Shimizu et al. do not disclose that the wavelength emitted by the light emission chips is in ultra violet range and the reflective layer is made of particles of metal oxide.

Robertson et al. teach the light emission chips (106a-106m) emitting light having a wavelength in the ultra violet range (column 2, line 29, column 3, lines 19 to 20) and operatively positioned relative to a phosphor layer (102, column 2, line 34 to 35, column 3, line 1) to emit white light (column 1, lines 32 to 36).

Zou et al. teach that it is known in the lighting art to use a reflective layer made of particles of metal oxide (aluminum oxide, zinc oxide, column 7, line 41) for optimizing the output radiation and light efficiency.

It would have been obvious to one skilled in the art to provide the light emission chips of Shimizu et al. with the ultra violet wavelength light emission chips, as shown by Robertson et al., for providing satisfactory white light upon the phosphorous layer.

It would have been obvious to one skilled in the art to make the reflective layer of Shimizu et al. with the particles of metal oxide, as shown by Zou et al., for optimizing the output radiation and light efficiency.

8. Claims 5 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Y Quach Lee whose telephone number is 571-272-2373. The examiner can normally be reached on Tuesday and Thursday from 8:30 am to 4:30 pm.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Customer Service whose telephone number is 571-272-2815.

Y. Q.
August 30, 2005

Y Quach Lee
Patent Examiner
Art Unit 2875